

Peroxisome proliferator-activated receptor- γ Pro12Ala polymorphism and risk of osteopenia in β -thalassemia major patients.

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Abstract

Genetic factors have an important role in the incidence of osteopenia in thalassemia patients. The purpose of this study was to investigate the effect of the Pro12Ala polymorphism of the peroxisome proliferator-activated receptor- γ (PPAR γ) gene on bone mineral density (BMD) and subsequently, the rate of osteopenia in β -thalassemia major (β -TM) patients. Blood samples were obtained from 156 β -TM patients referred to the Tehran and Qazvin Thalassemia Clinics. Samples were analyzed for polymorphisms of the PPAR γ gene using polymerase chain reaction-restriction fragment length polymorphism (RFLP)-based methods. Multivariate analysis was used to investigate the relationship between the risk of osteopenia and the PPAR γ gene polymorphism. Correlation analysis showed that there was a significant association between homozygous wild-type genotypes with susceptibility to osteopenia in β -TM patients ($p = 0.024$). Logistic regression analysis showed that the risk of osteopenia was significantly ($p < 0.05$) higher in the homozygous wild-type genotype than carriers of the rare alleles. Furthermore, the associations were strengthened in men with a homozygous wild-type genotype after adjustment for age and body mass index (BMI) ($p < 0.05$). This study suggests that the Pro12Ala polymorphism of the PPAR γ gene might be an independent factor in BMD level and osteopenia in thalassemia patients.

PMID: 23909657 DOI: [10.3109/03630269.2013.814035](https://doi.org/10.3109/03630269.2013.814035)

[Indexed for MEDLINE]